REMARKS

Claims 1-34 are pending. Claims 1 and 17 are independent claims. Reconsideration and allowance of the above referenced application are respectfully requested.

Consideration of the references listed in thePTO-1449 form mailed on September 28, 2005 is respectfully requested.

Claims 1-34 are rejected under 35 USC 103(a) as allegedly being unpatentable over Milliron (US Patent Application Publication 2004/0056871), hereinafter "Milliron" in view of Jennings et al. (US Patent Application Publication 2002/0089500), hereinafter "Jennings". The rejection is respectfully traversed.

Claim 1 recites, "receiving user input specifying a warping tool, the warping tool having a tool perimeter having a shape and a size, the warping tool having one or more associated tool vectors, each of the tool vectors originating at a mesh point defined by a tool mesh associated with the warping tool, the user input specifying one or more of the shape of the tool perimeter, the tool mesh, and the associated tool vectors, wherein the tool perimeter defines a region of influence for the warping tool; receiving user input moving the warping tool within an image; applying the warping tool, in response to user input, to the image; and modifying one or more distortion vectors for the image in response to the application of the warping tool, the one or more distortion vectors being within the region of influence when the warping tool is applied, the one or more distortion vectors being modified based at least in part on the one or more tool vectors." (Emphasis added).

Milliron describes techniques for geometric deformations in computer graphics including a flexible and general modular methodology constructing, analyzing, and evaluating geometric warps and deformations. Described techniques include establishing a set of source/target features (and related information) or parameter set for controlling deformation of a graphical model; a set of strength fields are established for controlling how strongly the transformation caused by the mapping of source feature to target feature will be applied to model points. A set of weighting fields modulates the influence of multiple source/target feature mappings on model points. See, e.g., Milliron at Abstract.

Jennings describes systems and methods for modifying a virtual object stored within a computer. The virtual object is represented as a volumetric representation. A portion of the volumetric model is converted into an alternative representation. The alternative representation can be a representation having a different number of dimensions from the volumetric representations. A stimulus is applied to the alternative representation, for example by a user employing a force-feedback haptic interface. The response of the alternative representation to the stimulus is calculated. The change in shape of the virtual object is determined from the response of the alternative representation. See, e.g., Jennings at Abstract.

The Office Action contends that Milliron teaches of specifying one or more of the shape of the perimeter, the tool mesh, and the associated vectors of a warping function by user input. See, e.g., Office Action, page 5, paragraph 1. In this regard, the Office Action states, "An example of a deformation mesh containing a figure can be seen in Figures 2A and 2B. As can be seen, the mesh-warping tool has a perimeter, shape, and a size." See, Office Action, page 4, paragraph 1. This contention cannot be supported. The reference box 2100 in Figures 2A and 2B merely illustrates the constancy of translation. In this regard, Milliron states, "The constancy of the translation across the underformed model can be understood in view of the position of the model points relative to the reference box 2100 in FIG. 2A and FIG. 2B." See, Milliron, [0080]. Therefore, the reference box 2100 in Figures 2A and 2B does not represent a perimeter of a warping tool as recited in claim 1.

In addition, the Office Action states, "However, Milliron teaches that the tool has a perimeter (e.g. for one thing the selected region, for a second thing the selected radius around the tool constitutes a tool perimeter (under one interpretation)." See, Office Action, page 22, last paragraph. As discussed previously, the reference box 2100 in Figures 2A and 2B does not represent a perimeter as recited in claim 1. Further, Milliron states, "FIG. 3A depicts an undeformed model with a source feature 3100 and a target feature 3200. A strength field is also shown. The strength field is shown in yellow in the accompanying color figures and the transparency corresponds to value of the strength field; the greater the magnitude of the strength field, the less transparent. As illustrated in FIG. 3A, the strength field falls off radially from a value of 1 at the source feature 3100." See, Milliron, [0083]. Therefore, the radius of the

strength field relates to the magnitude of the strength field and not a warping tool perimeter. Further, neither the cited portion nor any other portion of Milliron describes or suggests receiving user input specifying a warping tool, the warping tool having a tool perimeter having a shape and a size, as recited in claim 1.

Also, claim 1 recites, in part, both "receiving user input specifying a warping tool" and "receiving user input moving the warping tool within an image." Thus, as recited in claim 1, user input is received twice. In contrast, neither the cited portion nor any other portion of Milliron describes or suggests receiving user input specifying a warping tool and receiving user input moving the warping tool within an image, as recited in claim 1. As described in Milliron, the warp designer selects the set of feature specifications for transformation. See, e.g., Milliron, [0077], [0094]. Thus, Milliron receives only one input from the warp designer. As discussed previously, neither the reference box 2100 in Figures 2A and 2B nor the strength field in Figure 3A represent a perimeter as recited in claim 1. Therefore, Milliron does not describe or suggest receiving user input specifying a warping tool and receiving user input moving the warping tool within an image, as recited in claim 1.

Further, the Office Action acknowledges that Milliron does not teach receiving user input specifying the tool mesh. The Office Action states, "Although the warping method of Milliron includes the use of a mesh tool, there is no teaching of receiving user input to specify the tool mesh." See, Office Action, page 7, paragraph 2. The Office Action contends that Jennings describes receiving user input specifying the tool mesh. This contention cannot be supported. The cited portion of Jennings, [0064], describes creating an editable mesh corresponding to the surface selected by the user. In this regard, Jennings states, "The user selects (or activates) the 'Warp' computer command, whereupon the system creates an editable mesh corresponding to the surface selected by the user in FIG. 3A." See, Jennings, [0064]. Further, the cited portion of Jennings, [0015], describes that the applied stimulus comprises at least one of a displacement function, a smoothing function, a warping function, a volumetric interference, an areal interference, a result of a simulation, a control point modification, a data re-fitting, and a force. Neither of the cited portions of Jennings ([0064], [0015]) describe or suggest receiving user input specifying the tool mesh, as recited in claim 1.

Further, the Office Action contends that it would have been obvious to modify the teachings of Milliron to include those of Jennings. This contention cannot be supported. Milliron describes that surface-transformation systems to deform a first surface by mapping regions of the first surface to regions of a second surface are frequently inadequate for production of exaggerated or fictional animation effects. See, e.g., Milliron, [0008]. Milliron describes a feature-based transformation system to provide solutions to the problems described. See, e.g., Milliron, [0009]. Milliron states, "An illustrative method includes receiving the undeformed model and a set of feature specifications each of the set of feature specifications including a source feature, a target feature, and related deformation parameters. The set of feature specifications contains elements for controlling the deformation of the undeformed model." See, Milliron, [0009].

In contrast, Jennings states, "In yet another aspect, the invention features a method of modifying a volumetric representation of an object. The method comprises the steps of transforming at least a portion of the volumetric representation into a surface-based representation; modifying the surface-based representation; and modifying the volumetric representation to substantially represent the modification made to the surface-based representation." See, Jennings, [0021]. Thus, Jennings describes a surface-based transformation. Since Milliron describes that surface-based transformations are frequently inadequate for production of exaggerated or fictional animation effects, and since Jennings describes a surface-based transformation, Milliron teaches away from the teachings of Jennings. Therefore, one skilled in the art would not have been motivated to combine Milliron and Jennings as suggested by the Office Action. Since there is no motivation to combine Milliron and Jennings as suggested in the Office Action, a prima facie case of obviousness has not been established.

Since the suggested combination of Milliron and Jennings does not describe or suggest receiving user input specifying one or more of the shape of the tool perimeter, the tool mesh, and the associated tool vectors, the suggested combination does not describe or suggest all the features recited in claim 1. In addition, there is no motivation to combine the two references as

suggested by the Office Action. Therefore, it is respectfully requested that the rejection of claims 1-34 under 35 USC 103(a) be withdrawn.

Accordingly, claim 1 should be patentable. Claims 2-16 and 33 should also be patentable at least for the above reasons and the additional recitations that they contain. Claim 17 relates to a computer program product corresponding to claim 1 and should be patentable for similar reasons. Claims 18-32 and 34 should also be patentable at least for the same reasons and the additional recitations that they contain.

CONCLUSION

In view of the amendments and remarks herein, the Applicant believes that claims 1-34 are in condition for allowance and ask that these pending claims be allowed. The foregoing comments made with respect to the positions taken by the Examiner are not to be construed as acquiescence with other positions of the Examiner that have not been explicitly contested. Accordingly, the arguments for patentability of a claim should not be construed as implying that there are not other valid reasons for patentability of that claim or other claims.

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Respectfully submitted,

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